

**Capstone II
121/135 Training Program**

(Air Carrier Name inserted here)

i/R-01/2-20-03

**CAPSTONE II
TRAINING PROGRAM
FOR
FAR 121/135
OPERATIONS**

This Manual is current through revision Revision 1

Developed by:

University of Alaska Anchorage Aviation Technology
Leonard F. Kirk, Capstone Project Manager

For use by Alaskan Air Carriers Participating in Capstone

as approved by

FSDO-__ Principal Operations Inspectors (POI's)

FAA FSDO-__ APPROVED

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REVISIONS

Revisions will be prepared by an individual(s) designated by the operator in it's FAR 121 and/or 135 approved programs.

All manual revisions will be submitted to the FAA for review and approval prior to implementation.

Each revision will have a revision number, date, and page number being revised.

It will be the responsibility of each manual holder to keep his manual current and record any revisions on this page.

To facilitate record keeping, each revision will have a receipt attached which must be completed and returned to the individual designated.

LOG OF REVISIONS

Rev No.	Date	Page Numbers	Initials
Revision 1	02-20-03	Entire Manual for Beta Class Presentation	L.F.K. at UAA
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CAPSTONE TRAINING MANUAL REVISION

Revision No. _____ Issued _____, _____, _____ mm/dd/yy

Delete Page _____ Dated _____, _____, _____

Add Page _____ Dated _____, _____, _____

Delete Page _____ Dated _____, _____, _____

Add Page _____ Dated _____, _____, _____

(All deleted and added pages need to be listed in revision transmittal and each transmittal must contain a new list of effective pages or "LEP")

Date revision inserted in manual _____, _____, _____ mm/dd/yy

Signature _____

Return this receipt to:

University of Alaska Anchorage Aviation Technology
Capstone Office
2811 Merrill Field Drive
Anchorage, Alaska 99502

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GENERAL MANUAL USE

CAPSTONE II

EQUIPMENT

TRAINING

Capstone II 121/135 Training Program

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A-1/R-01/2-20-03

USE OF THIS MANUAL

This document is only one aspect of the total Capstone II training program and must be used with all the courseware addressed in the program. Each segment of training has specific curriculum segments and various subject modules supporting those segments. The definitions for curriculum segments and subject modules, as used in this manual, may be found under the title definitions in this Section. While the curriculum gives guidance as to the general areas of study required by the airman, the subject modules provide detailed information on the subjects to be presented. Modular Training is the concept of program development in which logical subdivisions of training programs are developed, reviewed, approved, and modified as individual units. Curriculum segments and modules may be used in multiple curriculums. The modular approach allows great flexibility in program development and reduces the administrative workload in the development and approval of these programs.

Instructors will make and follow their lesson plans based on the approved subject module. Improvements to the lesson plans are encouraged.

To determine the training required one need only define the category of training and duty position of the airman, and find the appropriate curriculum table in Section C. The page numbers for the appropriate curriculum segments appear in the corresponding blocks along with the suggested times to be applied to the curriculum segments. From there follow the curriculum to the curriculum segments in section D, for the objectives, instruction required, and prerequisites.

Each training curriculum lists the Curriculum Segments that must be completed prior to airman qualification. Within the Curriculum Segments are Subject Modules containing the descriptive information to be covered.

Revision control is accomplished in the upper right hand corner of each page. The following is an explanation of the terms found:

A-1/R-01/2-20-03

A-1	Represents Section A, Page 1.
R-org	Represents Revision original
R-10	Would represent Revision 10
2-20-03	Represents the date the revision became effective.

Record keeping is an integral part of training. Without adequately documented records, training never took place. This manual has one chapter (Section G) devoted to the records needed to properly document all phases of the Capstone training program.

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GENERAL INFORMATION:

REGULATIONS

Under the provisions of FAR 121 Subpart N, and 135, Subpart H, it is the responsibility of the operator to develop a training program in order to enhance safety and standardization. This manual, when implemented, fulfills the provision of a training program as required under FAR 121 and 135 for Pilots and Dispatchers for: initial, recurrent, and requalification training.

Under the provisions of FAR's 121 and 135: Crewmember Initial and Recurrent Training, there is a requirement that, "No certificate holder may use a person, nor may any person serve, as a crewmember in operations under this part unless that crewmember has completed the appropriate initial or recurrent training phase of the training program appropriate to the type of operation in which the crewmember is to serve."

Note, however, the provisions of FAR's 121 and 135 "Whenever a crewmember who is required to take recurrent training under this subpart completes the training in the calendar month before, or the calendar month after, the month in which that training is required, the crewmember is considered to have completed it in the calendar in which it was required."

One purpose of this training program is to provide information and impart skills to airmen leading to the competency checks or flight checks required under FAR's 121 and 135. Testing and checking determines whether learning has occurred. In that light, tests will be administered throughout the training program.

Initial approval of this manual and program will be indicated by letter and signed by the FAA Principal Operations Inspector.

Final approval of this manual and program must be obtained within 24 months from the date of initial approval and will be indicated by an appropriate stamp on each control page signed by the FAA Principal Operations Inspector.

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APPLICABILITY

This document sets forth the standards and requirements for the establishment and maintenance of an approved training program for crewmembers, check airmen, ground instructors, flight instructors and aircraft dispatchers who will be using Capstone equipment.

TRAINING OBJECTIVE

At the conclusion of each training curriculum segment, the individual involved will be able to successfully demonstrate his knowledge of the regulations, policies, and procedures applicable to the specific block of instruction by correctly answering 70 percent of the questions on written tests. Initial training on key Capstone equipment will be repeated until there is an 80 percent plus understanding of equipment's Capstone uses and functions. Some initial Capstone testing will be accomplished on a GX60 and MFD simulator.

CATEGORIES OF TRAINING

INITIAL. This training category is for pilots, dispatchers, ground instructors, flight instructors, and check airmen who will be using Capstone equipment for the first time or who have not received recurrent / requalification training in the last 24 Calendar months.

This training applies only to Capstone equipment.

This training is not to be confused with initial new hire training.

RECURRENT TRAINING. This category of training is for an airman who has been trained and qualified on Capstone equipment and who will continue to serve in the same duty position, and who must receive recurring training and/or checking within an appropriate eligibility period to maintain currency.

REQUALIFICATION TRAINING. This category of training is for an employee who has been trained and qualified by the operator, but has become unqualified to serve in a particular duty position due to not having received recurrent training and/or a required flight or competency check within the appropriate eligibility period and/or failure of a check ride (becoming disqualified). Requalification training is applicable to all airman positions: pilot, check airmen flight followers and dispatchers.

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FACILITIES

The Classrooms at University of Alaska Locations or other appropriate facilities as approved by the FAA will be used to conduct the Capstone II ground training. The rooms at UA can comfortably seat 20 students and have appropriate break rooms and rest facilities available. Initial training can be accomplished at any facility that will comfortably seat the participants and provides adequate break and rest facilities. The facility will also need provisions for all training aids and course material.

TRAINING AIDS

Training aids include: an overhead projector, video projector, 35mm slide projector, Capstone simulator and dry erase boards

COURSEWARE

- A. A listing of training materials made available to each student can be found in the appendix under, Training Materials.
- b. Specific lesson plans are contained in this manual in Appendix AP-D. All instructors will review the pertinent lesson plan prior to giving instruction.

QUALIFICATION REQUIREMENTS:

No person will be assigned duties as an airman using Capstone equipment until they have completed all of the training and checking requirements of this program.

All classroom attendants are expected to be certificated airmen as Pilots, Dispatchers, Ground Instructors or A&P qualified and involved in installation, repair or troubleshooting of Capstone II equipment.

BASIC CHECKING QUALIFICATION

The basic checking modules are in two parts. One part consists of the written or oral test elements and is applicable to Dispatchers, Ground Instructors, and Check Airmen and Pilots. The other part consists of the flight check events applicable to Pilots and Check Airmen.

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LINE CHECK QUALIFICATION

Before any pilot uses Capstone II equipment in an aircraft while in revenue service, that pilot must have satisfactorily completed a line check with a qualified FAA inspector or a Check Airman approved by the FAA to give Capstone II Equipment line checks.

REQUALIFICATION TRAINING:

In this section a formal definition of requalification training is given; a definition is not given in the FAR's. Since crewmembers qualified for operations in revenue service under FAR's Part 121 and 135 do sometimes lose their qualification, it is useful to have a definition of requalification training, including the reasons for it and its objectives.

Capstone II requalification training curriculums that are used to requalify PIC's who have been unqualified for 12 months or more may be included in a required PIC line check module. FAR's Part 121 and 135 specifies that all PIC's must satisfactorily complete a line check once every 12 calendar months. Therefore, the qualification curriculum segment for recurrent training should include a line check module for the PIC.

Requalification training is that category of training conducted specifically to restore a previously qualified crewmember to a qualified status.

- A. **LOSING QUALIFICATION.** A crewmember may lose qualification status and become "unqualified" for any of the following reasons: failure to accomplish all of the recency of experience requirements required by the regulations; failure to complete recurrent training within the eligibility period established by the regulations; or failure of a check ride. A crewmember may be simultaneously qualified in one airplane or duty position and unqualified in another.

Note: If a crewmember fails a check ride in one airplane, that crewmember cannot fly in revenue service in another airplane until the crewmember's qualification has been re-established.

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B. FAILURE TO COMPLETE RECURRENT TRAINING.

A requalification curriculum segment is required when a crewmember fails to complete recurrent training during a pre-established eligibility period. The minimum amount of training required in each segment of the curriculum is determined by the length of time the crewmember has been unqualified. Crewmembers must be trained to proficiency and complete a qualification module before being returned to revenue service. Tables containing the requalification requirements for airmen who have exceeded their respective eligibility periods for required training or checks are contained in the requalification segment of training.

C. NONCURRENT OR OVERDUE UPON REASSIGNMENT.

A crewmember who is reassigned to a duty position or aircraft type in which the crewmember was previously qualified, but is not currently qualified, must receive requalification training. The method used to requalify the crewmember differs according to the reason for the requalification as follows:

- a. A crewmember that is unqualified solely because of not having accomplished the required currency events may be requalified by completing those events or a recency of experience qualification module as appropriate.
- b. A crewmember that is unqualified for being overdue recurrent training may be requalified in accordance with the table in the requalification segment.

- D. REQUALIFICATION AFTER FAILED CHECKRIDES.** A crewmember that fails a required check must be entered into requalification training. The requalification training segment must consist of at least that remedial training required to restore the airman's competency in the failed events.

The instructor or check airman conducting this training must certify to the crewmember's proficiency before the crewmember re accomplishes the check ride. This certification is not limited to the events the crewmember failed but it encompasses all events of the qualification module.

The qualification module for SIC shall consist of the module previously failed. The qualification curriculum segment for a PIC shall consist of either the basic qualification module, the line check module, or both, if appropriate.

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PART 121/135 REQUALIFICATION CURRICULUMS
AIRMEN OVERDUE TRAINING
CAPSTONE II EQUIPMENT QUALIFICATION

Time Past Month Due	RGT Segment	RFT Segment	Qualification Segment
Up to 12 calendar months	The portion of RGT not Accomplished when due.	The elements not Accomplished when due.	The modules not Accomplished in the Eligibility period: CC, PC, LC, or special.
12 to 35 months	8 hours	Line training and checking to proficiency	All qualification modules Of the recurrent ground training curriculum.
36 to 59 months	16 hours	Line training and checking to proficiency	All qualification modules Of the recurrent ground and flight training Curriculum.
More than 59 months	Same as Initial	Same as Initial	Same as Initial

Key: RGT = Recurrent Ground Training
 RFT = Recurrent Flight Training
 CC = Competency Check
 PC = Proficiency Check
 LC = Line Check

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CREDIT FOR PREVIOUS GROUND TRAINING

It is recognized that in some cases a flight crewmember may have recently completed Capstone II training and may be qualified to operate. This previous training will be a result of having been qualified (within the last twelve months) with another certificated operator with an approved Capstone II training program.

In a situation such as this, certain ground training subject modules may be granted credit for previous training. In order to take advantage of this "credit" certain documentation **MUST** be on file in the crewmember's record file.

Acceptable training "credit" will be within the same make and model with the same Capstone II equipment installation. Variations within a series and/or installed equipment must be evaluated and knowledge determined to be satisfactory.

Supporting documentation will consist of the following:

- a. Copies of training received from a certificated Air Carrier's approved FAR 121 or 135 training program, including an FAA form 8410-3, Proficiency Check record (within the previous twelve calendar months).
- b. Copies of training received from a training center such as UAA Aviation Technology. (Within the previous twelve calendar months).

Training credit will be granted only with supporting documentation in the crewmember's record file. Training in each subject area for which credit is granted will consist of a quiz or review to determine the extent of the crewmember's knowledge and instruction as necessary in any area of knowledge determined to be deficient.

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INSTRUCTORS AND CHECK AIRMEN

- A. No person may serve as a flight instructor or check airman in the training program for Capstone equipment unless that person:
 - 1. Has completed all required initial ground and flight training for Capstone equipment.
 - 2. In the case of a check airman, has been approved by the Administrator for the airman duties involved under the provisions of FAR 121 or 135.
- B. Ground training will be conducted at the direction of the Operator and his designated representative.

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DEFINITIONS

The following terms are used throughout this training manual and are defined as follows:

Training Program: A system of instruction, which includes curriculums, facilities, instructors, check airmen, courseware, instructional delivery methods, and testing and checking procedures. This system must satisfy the training program requirements of Part 121 or Part 135 and ensure that each crewmember and dispatcher remains adequately trained for each aircraft, duty position, and kind of operation in which the person serves.

Curriculum: A complete training agenda specific to Capstone equipment and a crewmember or dispatcher duty position. Each curriculum consists of several curriculum segments.

Curriculum Segment: The largest subdivision of a curriculum containing broadly related training subjects and activities based on regulatory requirements. Curriculum segments are logical subdivisions of a curriculum, which can be separately evaluated and individually approved, for example: the ground training segment and the flight training segment. Each curriculum segment consists of one or more training modules.

Modular Training: The concept of program development in which logical subdivisions of training programs are developed, reviewed, approved, and modified as individual units. Curriculum segments and modules may be used in multiple curriculums. The modular approach allows great flexibility in program development and reduces the administrative workload on both operators and in the development and approval of these programs.

Training Module: A subpart of a curriculum segment, which constitutes a logical, self-contained unit. A module contains elements or events, which relate to a specific subject. For example, a ground training curriculum segment could logically be divided into modules pertaining to aircraft systems (hydraulic, pneumatic, electrical, etc.). As another example, a flight training curriculum segment is normally divided into flight periods each of which is a separate module. A training module includes the outline, appropriate courseware, and the instructional delivery methods. It is usually but not necessarily completed in a single training session.

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Courseware: Instructional material developed for each curriculum. This is information in lesson plans, instructor guides, computer software programs, audiovisual programs, workbooks, aircraft operating manuals, and handouts. Courseware must accurately reflect curriculum requirements, be effectively organized, and properly integrate with instructional delivery methods.

Instructional Delivery Methods: Methodology for conveying information to a student. For example, this may include lectures, demonstrations, audiovisual presentations, home study assignments, workshops, and drills. Training devices, simulators, aircraft, and computer workstations are also considered instructional delivery methods.

Eligibility Period: The eligibility period is three calendar months; the base month, (the "training/checking" month) the prior month, (the month before the "training and checking" month) and/or the grace month (the calendar month after the "training/checking" month). During this period a crewmember or aircraft dispatcher must receive recurrent training, a flight check, or a competency check, to remain in a qualified status. Training or checking completed during the eligibility period, is considered to have been completed during the base month or ("training/checking month").

CONTRACT TRAINING

**CAPSTONE II
EQUIPMENT
TRAINING**

**Capstone II
121/135 Training Program**

(Air Carrier Name inserted here)

B-1/R-01/2-20-03

CONTRACT TRAINING

RESERVED FOR FUTURE USE

Agencies approved to provide training under FAR 142

TRAINING

CURRICULA

CAPSTONE II

EQUIPMENT

TRAINING

**Capstone II
121/135 Training Program**

(Air Carrier Name inserted here)

C-1/R-01/2-20-03

INITIAL GROUND TRAINING

<u>SUBJECTS</u>	<u>HOURS</u>
HISTORY OF GPS Lesson D-2	1/2
CAPSTONE SAFETY INITIATIVE Lesson D-3	1/2
INTRODUCTION TO & SYSTEM OVERVIEW..... Lesson D-4	1/2
Caution/Warning/Advisory System..... Lesson D-5	1/2
SYSTEM COMPONENTS / CONTROLS..... Lesson D-6	1/2
SYSTEM COMPONENTS / ATTITUDE/HEADING REFERENCE SYSTEM Lesson D-7.....	1/2
SYSTEM COMPONENTS / GPS RECIEVER Lesson D- 8	1/2
DISPLAY SYMBOLOGY Lesson D-9	1/2
MFD MENU FUNCTIONS .. (Includes hands on exercises)..... Lesson D-10	1
WAYPOINTS ...(Includes Hands on exercises) Lesson D -11	1
FLIGHT PLANS ...(Includes hands on exercises) Lesson D-12	1
APPROACHES DP's AND STARs ...(Includes hands on exercises) Lesson D-13	1

**Capstone II
121/135 Training Program**

(Air Carrier Name inserted here)

C-2/R-01/2-20-03

“FUNCTIONS” Step-by-Step Procedures..(Includes hands on exercises)...	1
Lesson D-14	
Putting it all together .(Includes hands on exercises)	1
Lesson D-15	
Review ...(Includes hands on exercises).....	2
Lesson D -16	
Comprehensive ground training final exam (Includes hands on exercises).	2
Lesson D-17	
Operations Manual, Operations Specifications and MEL.....	2
Lesson D-18	
 TOTAL HOURS FOR CAPSTONE II INITIAL	 <u>16</u>

Note: All lessons in this carricula are based on 10 minutes of break each hour.

**Capstone II
121/135 Training Program**

(Air Carrier Name inserted here)

C-3/R-01/2-20-03

INITIAL FLIGHT TRAINING

SUBJECTS

HOURS

VFR / IFR CAPSTONE FLIGHTS	1+ Hrs. (#1)
LESSON F-3 PREFLIGHT PLANNING	
LESSON F-4 CAPSTONE EQUIPMENT SETUP AND TESTS	
LESSON F-5 PRE TAKEOFF	
LESSON F-6 AIRPORT AREA OPERATIONS (departure)	
LESSON F-7 EN ROUTE OPERATIONS	
LESSON F-8 DIVERSIONS	
LESSON F-9 TERRAIN ALERTING	
LESSON F-10 TRAFFIC ALERTING	
LESSON F-11 WEATHER INFORMATION	
LESSON F-12 ARRIVAL (Descent and Approach)	
LESSON F-13 AIRPORT AREA OPERATIONS (arrival)	
LESSON F-14 POST FLIGHT; CAPSTONE REPORTING	
 MEL (Minimum Equipment List).....	1/2 Hr.
LESSON F-16 INFLIGHT OPERATIONS WITH INOPERATIVE COMPONENTS IN THE CAPSTONE EQUIPMENT,	
 MULTI CREW OPERATIONS ONLY	1/2 Hr.
LESSON F-17 ASSIGNMENT OF CAPSTONE DUTIES BY CREW POSITION	
 IFR MANUEVERS/PROCEDURES.....	1+ Hrs. (2#)
LESSON F-18 GPS EN ROUTE PROCEDURES	
LESSON F-19 GPS APPROACHES	
 TOTAL HOURS FOR CAPSTONE INITIAL FLIGHT TRAINING	3+Hrs.

(#1) The initial Capstone flight must have a route segment with at least 30 minutes of cruise flight in an area with airports near the route of flight to set up scenarios using en route diversions airport, navaid and flight planning functions.

(#2) The IFR portion of the Capstone training must be accomplished on a GPS airway or airway segment with GPS intersections or waypoints and be concluded with a GPS approach.

**Capstone II
121/135 Training Program**

(Air Carrier Name inserted here)

C-4/R-01/2-20-03

RECURRENT TRAINING

SUBJECTS

HOURS

GROUND TRAINING

Primary Flight Display (PFD)

LESSONS D- 5, 6, 7, 8, 91 1/2 Hrs.

Primary Navigation Display (PND)

LESSONS D-10, 11, 12, 13, 14,1 1/2 Hrs.

Review and Exam

LESSONS D- 15, 16, 17.....1/2 Hr.

TOTAL RECURRENT GROUND TRAINING 3 1/2 Hrs.

FLIGHT TRAINING

CAPSTONE VFR FLIGHT

LESSONS F-7, 8, 9, 10, 11, 12, 13, 14, 15, 16, 17, 181+Hr. (#1)

MULTI CREW OPERATIONS ONLY

LESSON F-201/2 Hr.

CAPSTONE IFR FLIGHT

LESSONS F-21, 221+Hr. (#2)

TOTAL HOURS FOR CAPSTONE RECURRENT FLIGHT TRAINING

VARIED

VFR SINGLE PILOT ONLY1 Hr.

VFR AND IFR MULTI CREW2 1/2 Hrs.

(#1) CAPSTONE VFR FLIGHT OVER A ROUTE SEGMENT WITH AT LEAST
30 MINUTES OF CRUISE FLIGHTS FOR DIVERSION AND EMERGENCY
SCENARIOS TO BE DEMONSTRATED AND DISCUSSED.

(#2) CAPSTONE VFR FLIGHT MUST INCORPORATE AN AIRWAY
SEGMENT AND A GPS APPROACH

**Capstone II
121/135 Training Program**

(Air Carrier Name inserted here)

C-5/R-01/2-20-03

REQUALIFICATION TRAINING

THIS TRAINING IS FOR AN AIRMAN WHO HAS NOT COMPLETED RECURRENT TRAINING IN THE PAST 14 MONTHS DURING A NORMAL QUALIFICATION PERIOD (Prior, Base, or Grace month).

THE REQUALIFICATION TRAINING MAY CONSIST OF ONLY THOSE LESSONS AND SUBJECTS NOT COMPLETED WITHIN THE NORMAL QUALIFICATION PERIOD (ie: Completed everything except MFD ground only requal would be MFD ground)

SUBJECTS AND HOURS FOR REQUALIFICATION WILL BE THE SAME AS RECURRENT FOR AIRMAN WITHIN 24 CALENDER MONTHS OF LAST TRAINING.

AN AIRMAN WHO HAS BECOME UNQUALIFIED FOR MORE THAN 24 CALANDER MONTHS WILL REQUIRED TO TAKE INITIAL TRAINING

**Capstone II
121/135 Training Program**

(Air Carrier Name inserted here)

C-6/R-01/2-20-03

INSTRUCTOR/CHECK AIRMAN

ALL CHECK AIRMEN USED FOR CAPSTONE EQUIPMENT MUST BE QUALIFIED IN THE AIRCRAFT AND ON THE EQUIPMENT WITHIN THE GUIDELINES OF FAR 121.401, 121.411, AND 121.413 AND/OR 135.323, AND 135.337

FOR CURRENT AND QUALIFIED CHECK AIRMEN (in the aircraft to be used for the training and checking) THE INITIAL CAPSTONE TRAINING WILL BE THE SAME AS OTHER AIRMAN. THE CHECKAIRMAN MAY DO TRAINING AND CHECKING ON CAPSTONE EQUIPMENT AFTER SATISFACTORY COMPLETION OF ALL CAPSTONE TRAINING INCLUDING A PROFECIENCY CHECK IN THE AIRCRAFT

GROUND TRAINING

THE GROUND INSTRUCTORS AND CHECK AIRMAN WHO WILL BE CONDUCTING GROUND AND FLIGHT INSTRUCTION, MUST HAVE SATISFACTORY COMPLETED CAPSTONE INITIAL TRAINING AND ATTEND A CAPSTONE "TRAIN THE TRAINER COURSE"

SUBJECT

HOURS

"TRAIN THE TRAINER COURSE"

LESSON T-1 (COURSE MATERIALS)

LESSON T-2 (CLASSROOM EXERCISES)

LESSON T-3 ("SIMULATOR" OPERATION)

LESSON T-4 (RECORDKEEPING)

TOTAL HOURS GROUND "TRAIN THE TRAINER"4 Hrs.

**Capstone II
121/135 Training Program**

(Air Carrier Name inserted here)

C-7/R-01/2-20-03

DISPATCHER SPECIFIC TRAINING

INITIAL

THE AIRCRAFT DISPATCHERS AND FLIGHT FOLLOWERS WHO WORK
IN THE CAPSTONE AREA OF OPERATION MUST HAVE A THOUGH
KNOWLEDGE OF THE CAPSTONE EQUIPMENT AND ITS LIMITATIONS

SUBJECT

HOURS

HISTORY OF GPS

LESSON D-11 Hr.

CAPSTONE SAFETY INITIATIVE

LESSON D-21 Hr.

INTRODUCTION TO GPS

LESSON D-31 Hr.

PREFLIGHT PLANNING

LESSON F-31 Hr.

MEL (minimum equipment list)1/2 Hr.

CAPSTONE LIMITATIONS (RAIM, NOTAMS, ALTIMETRY)..... 1 Hr.

CAPSTONE RECORD KEEPING 1/2 Hr.

REVIEW AND EXAMINATION1 ~~Hrs.~~

DISPATCHER INITIAL CAPSTONE TRAINING

TOTAL HOURS7 1/2 Hrs.

**Capstone II
121/135 Training Program**

(Air Carrier Name inserted here)

C-8/R-01/2-20-03

DISPATCHER SPECIFIC TRAINING

RECURRENT / REQUALIFICATION

SUBJECT

HOURS

PREFLIGHT PLANNING1 Hr.

MEL (minimum equipment list)1/2 Hr.

CAPSTONE LIMITATIONS (RAIM, NOTAMS, ALTIMETRY).....1 Hr.

REVIEW AND EXAMINATION1 ~~1~~rs.

TOTAL HOURS FOR RECURRENT or REQUALIFICATION 4 Hrs.

CURRICULUM SEGMENTS

CAPSTONE II

EQUIPMENT

TRAINING

**Capstone II
121/135 Training Program**

(Air Carrier Name inserted here)

D-ii/R-01/2-20-03

CURRICULUM SEGMENTS INDEX

(Lesson Plans)

Introduction.....	D-1
History of GPS.....	D-2
Capstone Safety Initiative.....	D-3
Introduction & System overview.....	D-4
Caution / Warning / Advisory System.....	D-5
System Components / Controls.....	D-6
System Components / Attitude / Heading Reference System.....	D-7
System Components / GPS Receiver.....	D-8
Display Symbology	D-9
MFD MENU FUNCTIONS	D-10
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Operations manual, Op Specs and MEL	D-16
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Comprehensive ground training final exam	D-18

**Capstone II
121/135 Training Program**

(Air Carrier Name inserted here)

D-1/R-01/2-20-03

INTRODUCTION

Section D of this manual serves as the curriculum segments / lesson plans for the Capstone II Equipment ground Training.

The curriculum segments are laid out in outline form to capture 100% of the available topics on the use of the Capstone Equipment.

The Curriculum segments if used as a checklist will provide a means of assuring that all relevant material is covered.

Capstone II
121/135 Training Program

(Air Carrier Name inserted here)

D-2/R-01/2-20-03

LESSON PLAN: HISTORY OF GPS

OBJECTIVE: Provide the airmen involved in Capstone with an understanding of GPS its history and how it functions.

INSTRUCTIONAL DELIVERY METHODS: Lecture

TESTING/CHECKING: Oral exam

1) The History of GPS.

- (1) October 1957 the Launch of Sputnik.
- (2) US military programs TRANSIT system in 1964.
- (3) TIMATION I launched by U.S. Navy in 1967.
- (4) NAVSTAR GPS program in 1973 with USAF and US Navy.
- (5) Korean Airlines Flight 007 in 1983.
- (6) Seven Satellites in 1985.
- (7) Full Operational Coverage on April 27, 1995 with 24 satellites.
- (8) Agreement between US-DoD and the US department of transportation.
- (9) Civil Authorization

2) The Function of GPS components.

- (1) The satellite constellation Space Vehicles (SV).
- (2) Ground Stations.
- (3) Controls on the system.
- (4) (SPS) and (PPS) signals.
 - a. Descriptions and acronyms.
 - b. Limitations.

EXAM: a quick oral to ensure all participants have a ready reference capability to definitions, descriptions and acronyms.

Capstone II
121/135 Training Program

(Air Carrier Name inserted here)

D-3/R-01/2-20-03

LESSON PLAN: **CAPSTONE SAFETY INITIATIVE**

OBJECTIVE: Provide the Airman with an understanding of the background and history of Capstone

REFERENCES: FAA Capstone literature. Capstone Web Site
www.alaska.faa.gov/capstone

COURSEWARE: Transparencies, overhead projector or PowerPoint

INSTRUCTIONAL DELIVERY METHODS: Lecture,

TESTING / CHECKING: NONE

STANDARD: N/A

- 1) HALALASKA PROJECT
- 2) SAFE FLIGHT 2000
- 3) CAPSTONE I and CAPSTONE II
- 4) INDUSTRY AND THE FAA
- 5) UAA / FAA CONTRACT
- 6) SAFETY STUDY
- 7) USER INPUT
- 8) TRAINING
- 9) FUTURE OF CAPSTONE
- 10) CAPSTONE WEB SITE

Capstone II
121/135 Training Program

(Air Carrier Name inserted here)

D-4/R-01/2-20-03

LESSON PLAN: INTRODUCTION & SYSTEM OVERVIEW

OBJECTIVE: Provide the pilot operator of the Capstone installed avionics with the ability to activate the system and determine that it is operating properly prior to operation.

Examine system limitations to alert pilot operators to limitations and the potential for misuse or error in the system.

REFERENCES: Pilots operating guide and student handbook

COURSEWARE: Student handbook, PFD / PND (Primary Flight Display/Primary Navigation Display) simulator, overhead projector and transparencies or Power Point slides..

INSTRUCTIONAL

DELIVERY METHOD: Lecture, demonstration, hands on participation.

TESTING/CHECKING: Written or Oral exam

STANDARD: The minimum passing score is 100%. The airman must have total understanding of basic functions in order to gain the required knowledge in other segments.

1. Sierra EFIS features / getting started.

- i) General description / Acronyms and Abbreviations
 - a. Primary flight display / Coloring Conventions
 - b. Navigation display / Coloring Conventions
- ii) System Configuration
 - a. MFD / PFD
 - b. AHRS (Attitude Heading and Reference System)
 - c. GPS
- iii) Operational Warnings

**“DO NOT FLY WITH YOUR CHELTON EFIS IF YOU
DO NOT FULLY UNDERSTAND EACH WARNING...”**

Capstone II
121/135 Training Program

(Air Carrier Name inserted here)

D-5/R-01/2-20-03

LESSON PLAN: CAUTION / WARNING / ADVISORY SYSTEM

OBJECTIVE: Provide the user of the CFHELTON EFIS a through understanding of the parameters that provide the auditory annunciations for conditions that demand pilot attention.

REFERENCES: Pilots operating guide and student handbook

COURSEWARE: Student handbook, PFD / PND simulator, overhead projector and transparencies or Power Point slides.

INSTRUCTIONAL DELIVERY METHODS: Lecture, demonstration, and hands on exercises

TESTING / CHECKING: Student handbook exercises

STANDARD: Minimum passing score 70%

1) Warning

- (i) Voice Warnings
- (ii) High/low-tone warble

2) Caution

- (i) Voice warnings
- (ii) High/low-tone warble

3) Advisory

- (i) Voice Warnings
- (ii) High/low-tone warnings

4) Multiple auditory annunciations

- (i) Critical priority
- (ii) Stacking Flags

This module (D-5) and the prior module (D-4) should be accomplished with repeated demonstration and discussion to insure the pilot operator of the system is thoroughly familiar with the system and its limitations.

Capstone II
121/135 Training Program

(Air Carrier Name inserted here)

D-6/R-01/2-20-03

LESSON PLAN:	SYSTEM COMPONENTS / CONTROLS
OBJECTIVE:	Provide the Airman with the skills required to Use the system components of the MFD and PFD
REFERENCES:	Pilots operating guide and student handbook
COURSEWARE:	Student handbook, MFD/PFD simulator, overhead projector and transparencies or Power Point slides.
INSTRUCTIONAL DELIVERY METHODS:	Lecture, demonstration, hands on exercises
TESTING / CHECKING:	Student handbook exercises
STANDARD:	Minimum passing score 70%
 1) Brightness knob (i) Screen (ii) Buttons & slip indicator	
 2) Menu control knob (i) Highlight the desired menu	
 3) Menu buttons (ii) Selecting a screen menu	
 4) Dedicated buttons (iii) Heading Bug (iv) Nearest (v) Direct	
 5) Reinitializing the system	

Capstone II
121/135 Training Program

(Air Carrier Name inserted here)

D-7/R-01/2-20-03

LESSON PLAN: **SYSTEM COMPONENTS / ATTITUDE / HEADING
REFERENCE SYSTEM**

OBJECTIVE: Provide the Airman with an understanding of the
AHRS

REFERENCES: Pilots operating guide and reference

COURSEWARE: Student handbook, MFD/PFD simulator, overhead
projector and transparencies or Power Point slides

**INSTRUCTIONAL
DELIVERY METHODS:** Lecture, demonstration, hands on exercises

TESTING / CHECKING: Student handbook exercises

STANDARD: Minimum passing score 70%

1) System description

2) System limitations

(i) Failure Modes

3) Warnings

(i) Proper power up

(ii) Proper initialization

Capstone II
121/135 Training Program

(Air Carrier Name inserted here)

D-8/R-01/2-20-03

LESSON PLAN: **SYSTEM COMPONENTS / GPS Receiver**

OBJECTIVE: Provide the Airman with the skills required to
 Use the system components of the MFD and PFD

REFERENCES: Pilots operating guide and reference

COURSEWARE: Student handbook, MFD/PFD simulator, overhead
 projector and transparencies

INSTRUCTIONAL

DELIVERY METHODS: Lecture, demonstration, hands on exercises

TESTING / CHECKING: Student handbook exercises

STANDARD: Minimum passing score 70%

- 1) **GPS Overview**
- 2) **GPS Accuracy**
- 3) **Component Failure Modes**

Capstone II
121/135 Training Program

(Air Carrier Name inserted here)

D-9/R-01/2-20-03

LESSON PLAN: DISPLAY SYMBOLOGY

OBJECTIVE: Provide the pilot operator of the Capstone installed avionics with the ability to properly interpret the display symbology.

Practice adding and removing symbology and examine its use.

REFERENCES: Pilots operating guide and student handbook.

COURSEWARE: Student handbook, PFD / PND simulator, overhead projector and transparencies or Power Point slides.

INSTRUCTIONAL

DELIVERY METHOD: Lecture, demonstration, hands on participation.

TESTING/CHECKING: Written or Oral exam

STANDARD: The minimum passing score is 100%. The airman must have total understanding of all display symbology in order to properly utilize the system.

1) PFD Symbology

- a. Basic PFD
- b. PFD on Approach (Terrain on)
- c. PFD on Approach (Terrain Off)
- d. Unusual Attitude Recovery Mode

2) Navigation Display Symbology

- a. Basic Moving Map
 - b. Moving Map with instrument approach
 - c. Moving Map with STAR
 - d. Conventional HIS Format
 - e. Traffic Display
 - f. North-Up Arc Mode
 - g. North-Up Centered Mode
 - h. Heading-Up Centered Mode
 - i. Failure Modes
 - j. GPS, ADC, and AHRS Failure
-

Capstone II
121/135 Training Program

(Air Carrier Name inserted here)

D-10/R-01/2-20-03

LESSON PLAN: MFD MENU FUNCTIONS

OBJECTIVE: Provide the pilot operator of the Capstone installed avionics with the ability to properly display and use the menu functions.

REFERENCES: Pilots operating guide and student handbook.

COURSEWARE: Student handbook, PFD / PND simulator, overhead projector and transparencies or Power Point slides.

INSTRUCTIONAL

DELIVERY METHOD: Lecture, demonstration, hands on participation.

TESTING/CHECKING: Written or Oral exam

STANDARD: The minimum passing score is 70%.

1. MFD Menu Functions

- a. Primary Flight Display Menus
 - i. Button and Control Knob Functions (PFD)
 - ii. PFD Menus

- b. Navigation Display Menus
 - i. MFD top level Soft Menu.
 - ii. MFD top level Soft Menus.

**Capstone II
121/135 Training Program**

(Air Carrier Name inserted here)

D-11/R-01/2-20-03

LESSON PLAN: WAYPOINTS

OBJECTIVE: Provide the pilot operator of the Capstone installed avionics with the ability to select, insert and delete waypoints in flight plans.

REFERENCES: Pilots operating guide and student handbook.

COURSEWARE: Student handbook, PFD / PND simulator, overhead projector and transparencies or Power Point slides..

INSTRUCTIONAL

DELIVERY METHOD: Lecture, demonstration, hands on participation.

TESTING/CHECKING: Demonstrated ability to select, insert and delete Waypoints in an active flight plan.

STANDARD: The minimum passing score is 100%. Routes and waypoints in those routes are essential to proper and safe operation of the Capstone II equipment.

1. Generate a waypoint by Latitude and Longitude

a. Student workbook exercises

2. Generate a waypoint by Radial and Distance

b. Student workbook exercises

3. Generate a waypoint for present position

c. Student workbook exercises

4. Select a Waypoint within a route

d. Student workbook exercises

5. Add a Waypoint to an Active route

e. Student workbook exercises

6. Delete a Waypoint from an Active route

f. Student workbook exercises

7. Edit a user waypoint

g. Student workbook exercises

**Capstone II
121/135 Training Program**

(Air Carrier Name inserted here)

D-12/R-01/2-20-03

LESSON PLAN: FLIGHT PLANS

OBJECTIVE: Provide the pilot operator of the Capstone installed avionics with the ability to Create Edit and Activate flight plans using the CHELTON EFIS system.

REFERENCES: Pilots operating guide and student handbook.

COURSEWARE: Student handbook, PFD / PND simulator, overhead projector and transparencies or Power Point slides..

INSTRUCTIONAL

DELIVERY METHOD: Lecture, demonstration, hands on participation.

TESTING/CHECKING: Creating, Editing and Activating Flight Plans.

STANDARD: The minimum passing score is the demonstrated ability to create, edit and activate a flight plan.

1) Create a Flight Plan

- a. Flight Plan exercise "A" from student handbook
- b. Flight Plan exercise "B" from student handbook
- c. Flight Plan exercise "C" from student handbook

2) Edit an existing Flight Plan

- a. Flight Plan exercise "D" from student handbook
- b. Flight Plan exercise "E" from student handbook
- c. Flight Plan exercise "F" from student handbook

3) Reverse a Flight Plan

4) Delete a Flight Plan

5) Use a Flight Plan

- a. Activate Flight plan "A"
-

**Capstone II
121/135 Training Program**

(Air Carrier Name inserted here)

D-13/R-01/2-20-03

LESSON PLAN: APPROACHES DP's AND STARs

OBJECTIVE: Provide the pilot operator of the Capstone installed avionics with the ability to select, load and activate approaches, DP's and STARs.

REFERENCES: Pilots operating guide and student handbook.

COURSEWARE: Student handbook, PFD / PND simulator, overhead projector and transparencies or Power Point slides..

INSTRUCTIONAL

DELIVERY METHOD: Lecture, demonstration, hands on participation.

TESTING/CHECKING: Demonstrated ability to select, load and activate approaches, DP's and STARs.

STANDARD: The minimum passing score is 100%.

1. Select a VFR approach
2. Select an IFR approach
3. Select a DP
4. Select a STAR
5. Missed Approach Arming Procedure
6. Change Runway during Approach

Capstone II
121/135 Training Program

(Air Carrier Name inserted here)

D-14/R-01/2-20-03

LESSON PLAN: “FUNCTIONS” Step-by-Step Procedures

OBJECTIVE: Provide the pilot operator of the Capstone installed avionics with the ability to activate the system and use the functions within the system.

REFERENCES: Pilots operating guide and reference and student handbook.

COURSEWARE: Student handbook, PFD / PND simulator, overhead projector and transparencies or Power Point slides..

INSTRUCTIONAL

DELIVERY METHOD: Lecture, demonstration, hands on participation.

TESTING/CHECKING: Written or Oral exam on use of functions.

STANDARD: The minimum passing score is 70%.

1. Parallel Track Function
 - a. Set a Parallel Track / Turn Parallel Track off
2. Omnibearing Selector function
 - a. Automatic OBS / Manual OBS
3. Timer Functions
 - a. Count Up / Count Down
 - b. Flight Timer
 - c. Turning the Timer Off
4. BUG Functions
 - a. Heading BUG
 - i. Set Heading BUG / Turn Heading BUG Off
 - b. Altitude
 - i. Specify a Target Altitude
 - ii. Turning BUGs Off
 - iii. Specify a Minimum Altitude
 - c. Airspeed
 - i. Specify a Target Airspeed
 - d. VNAV
 - i. Change VNAV settings

Capstone II
121/135 Training Program

(Air Carrier Name inserted here)

D-15/R-01/2-20-03

LESSON PLAN: Putting it all together

OBJECTIVE: Provide the pilot operator of the Capstone installed avionics with the ability to use the system and all the functions in the flight environment.

REFERENCES: Pilots operating guide, quick reference checklists and student handbook.

COURSEWARE: Student handbook, PFD / PND simulator, overhead projector and transparencies or Power Point slides..

INSTRUCTIONAL

DELIVERY METHOD: Lecture, demonstration, hands on participation.

TESTING/CHECKING: Written and Oral exam on use of functions.

STANDARD: The minimum passing score is 80%.

1. Exercise to use as many elements of the avionics as possible and demonstrate an understanding and proper use of the system.

**Capstone II
121/135 Training Program**

(Air Carrier Name inserted here)

D-16/R-01/2-20-03

LESSON PLAN: OPERATIONS MANUAL, OP SPECS & MEL

OBJECTIVE: Provide the pilot operator of the Capstone installed avionics with an understanding of the operational requirements in the operations manual, limitations in the operations specifications and what is allowed by the MEL.

REFERENCES: Operations Manual and MEL

COURSEWARE: Operations Manual and MEL

INSTRUCTIONAL

DELIVERY METHOD: Lecture,

TESTING/CHECKING: Written and Oral exam on Op Specs and MEL.

STANDARD: The minimum passing score is 80%.

1. Review all Operations specifications
2. Review all operations manual procedures
3. Review all MEL items related to Capstone
4. Go through "what if" scenarios for inoperative equipment.
5. Go through "what if" scenarios for CWA items as spelled out in operations procedures in the operations manual.
6. Review special areas and airports in the operations specifications.

**Capstone II
121/135 Training Program**

(Air Carrier Name inserted here)

D-17/R-01/2-20-03

LESSON PLAN: Review

OBJECTIVE: A comprehensive review of all operational aspects of the Capstone II avionics their limitations and use in the cockpit.

REFERENCES: Pilots operating guide and reference, and student handbook.

COURSEWARE: Student handbook, PFD / PND simulator, overhead projector and transparencies or Power Point slides.

INSTRUCTIONAL

DELIVERY METHOD: Lecture, demonstration, hands on participation.

TESTING/CHECKING: N/A

STANDARD: N/A

- A. Caution / Warning / Advisory System
 - B. System Components / Controls
 - C. System Components / Attitude / Heading Reference System
 - D. System Components / GPS Receiver
 - E. Display Symbolology
 - F. MFD MENU FUNCTIONS
 - G. WAYPOINTS
 - H. FLIGHT PLANS
 - I. APPROACHES DP,s AND STARs
 - J. "FUNCTIONS" Step-by-Step Procedures
 - K. Operations manual, Op Specs and MEL
-

Capstone II
121/135 Training Program

(Air Carrier Name inserted here)

D-18/R-01/2-20-03

LESSON PLAN: **Comprehensive ground training final exam.**

OBJECTIVE: Provide the pilot operator of the Capstone installed avionics the opportunity to demonstrate the knowledge and skill levels necessary to operate the system safely.

REFERENCES: Quick reference checklists

COURSEWARE: Student handbook exam, functional avionics training device.

INSTRUCTIONAL

DELIVERY METHOD: This portion will be self administered by the student with the instructor examiner observing to measure effectiveness.

TESTING/CHECKING: Written and Practical exam on all Capstone II avionics functions.

STANDARD: The minimum passing score is 100% for all flight critical Segments.

Instructor notes:

The "Final Exam" must be completed without instructor assistance. The operator of this equipment in flight will only have the equipment itself and any reference material that is available in the aircraft.

The exam is time limited to measure the ability of the operator to make proper inputs within the time constraints of normal flight operations.

Failure to respond to altitude and terrain alerts during the practical application phase of the exam will result in failure and a need for additional training and retesting.

PROCEDURES

CAPSTONE II

EQUIPMENT

**Capstone II
121/135 Training Program**

(Air Carrier Name inserted here)

E-ii/R-01/2-20-03

SECTION E – PROCEDURES

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INTRODUCTION

THIS SECTION TO BE DEVELOPED

FORMAT

THIS SECTION TO BE DEVELOPED

Special VFR arrivals and departures

THIS SECTION TO BE DEVELOPED

(Air Carrier Name inserted here)

E-4/R-01/2-20-03

RNAV En route

THIS SECTION TO BE DEVELOPED

(Air Carrier Name inserted here)

E-5/R-01/2-20-03

RNAV Approaches

THIS SECTION TO BE DEVELOPED

(Air Carrier Name inserted here)

E-6/R-01/2-20-03

En Route track offset

THIS SECTION TO BE DEVELOPED

FLIGHT TRAINING

CAPSTONE II

EQUIPMENT

FLIGHT TRAINING CAPSTONE II EQUIPMENT

INDEX

The following pages comprise the flight training modules for the Capstone II Equipment. The modules are for Initial, Recurrent, and Requalification training and apply to all aircraft and airmen participating in Capstone. There are additional modules for aircraft flown with more than one flight deck crewmember and they address seat specific duties.

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INTRODUCTION

The flight training described herein will serve as the bases for standardized instruction and accomplishment of Capstone flight training. They will also serve as guidelines to achieve the highest level of proficiency and provide safe operations of the aircraft using Capstone Equipment. The flight training as outlined can be accomplished in revenue operations with the same limitations as would be imposed for Initial Operating Experience (IOE). Initial, Recurrent and Requalification flight training should be incorporated in the normal training program.

The flight training for Capstone Equipment must reference the Users Manuals for the Capstone Equipment in addition to the references to Commercial and Instrument Practical Test Standards the applicable titles contained in the Airline Transport Pilot Practical Test Standard, FAA-S-8081-5, shall apply to those crewmembers who are required to hold an Airline Transport Pilot Certificate as outlined in FAR Part 121 or 135 and the Company Operations Specifications. The acceptable performance guidelines shall be as contained in FAR Part 121, FAR 135 and company manuals.

FORMAT

The following flight training procedures are designed to provide the highest level of safety and efficiency when operating with the Capstone Equipment. The procedures are designed for flight training, pilot preparation and pilot evaluation. These maneuvers are presented in accordance with the following outline:

1. **TITLE.** A specific name for the individual procedure consistent with Capstone Operations with references to FAR's and Practical Test Standards when
2. **OBJECTIVE.** The procedure objective briefly states the purpose for which the procedure is required.
3. **REFERENCES.** The reference for the procedure states the document in which the procedure appears.
4. **DESCRIPTION.** For each flight procedure utilized, there is a prescribed chronological order of events followed in the execution of the particular procedure. The description may include CAUTIONS and brief NOTES to highlight aspects of the procedure.

In cases where more than one procedure is described, the alternate procedure(s) is included within the description. The alternate procedures will be identified as an ALTERNATE PROCEDURE.

5. **ACCEPTABLE PERFORMANCE GUIDELINES.** The acceptable performance guidelines set forth in these procedures are utilized to evaluate the performance of a pilot and to determine if that pilot has attained the desired proficiency level. Consideration shall also be given to overall judgment, and knowledge.
6. **PROFILE.** For a flight training procedure for which a pictorial depiction is appropriate, one is provided.

CAPSTONE II EQUIPMENT VFR / IFR OPERATIONS

Title: PREFLIGHT PLANNING

References: AC 61-21, Practical Test Standards: Commercial, ATP

Objective: To determine that the pilot is competent in performing preflight planning on routes where the Capstone Equipment will be utilized.

Description:

The pilot will accomplish normal preflight planning to include weather, nav aids, notams, RAIM and fuel requirements. The preflight planning will also include aircraft maintenance status for any deferred maintenance items or MEL limitations. For initial Capstone qualification "what if" scenarios need to be posed for potential Capstone equipment limitations / failures.

Acceptable Performance Guidelines:

FAA Practical Test Standards for Commercial or ATP as appropriate must have proper airport and weather information.

CAPSTONE II EQUIPMENT VFR / IFR OPERATIONS

Title: CAPSTONE EQUIPMENT SET UP AND TESTS

References: QRH or Checklist

Objective: To determine that the pilot understands the test sequence of the Capstone II Equipment and can identify any faults in the system.
Set up the Capstone II Equipment for the intended flight.

Description: The pilot will start up the Capstone II Equipment and observe all tests functions to ensure proper equipment operation.

Acceptable Performance Guidelines:

Practical Test Standards

- Proper use of cockpit checklists
 - Proper start up procedures
 - Proper flight plan selection
 - Proper procedure selection and loading for DP
 - Reduction in workload during flight as a result of proper set up
- .

**Capstone II
121/135 Training Program**

(Air Carrier Name inserted here)

F-5/R-01/2-20-03

CAPSTONE II EQUIPMENT VFR / IFR OPERATIONS

Title: Pre Takeoff

References: Practical Test Standards: Commercial, Instrument, ATP

Objective: To determine that the pilot has accomplished all pre takeoff checklists in accordance with the AFM, Company and FAR requirements

Description:

The pilot will demonstrate all checklist items to ensure proper aircraft operations and equipment capabilities. The pilot must properly address how any “what if” scenarios of inoperative equipment would be handled prior to takeoff.

Acceptable Performance Guidelines:

All AFM and company limitations are complied with

CAPSTONE II EQUIPMENT VFR / IFR OPERATIONS

- Title:** Airport area Operations (Departure)
- Objective:** Maintain proper operating practices while using Capstone Equipment
- References:** Practical test standards
- Description:** The pilot needs to operate the aircraft within the airport traffic area using standard practices. Outside watch for traffic is extremely important.

DO NOT HAVE YOUR HEAD DOWN TRYING TO USE THE
CAPSTONE EQUIPMENT IN A BUSY VFR TRAFFIC PATTERN.

Proper preflight planning, equipment set up and tests, and pre takeoff checklists should prevent the need to adjust the equipment at this critical phase of flight. The desired MFD display and GPS functions used for the departure phase of flight should be selected prior to taking the active runway.

Acceptable performance guidelines:

Maintain proper traffic watch and follow all prescribed airport departure procedures.

Compliance with all clearances issued by the tower and/or Check Airman.

Promptly advise Check Airman or tower if unable to comply with a clearance.

When required, establishment and maintenance of 2-way radio communications with ATC using proper phraseology and technique.

**Capstone II
121/135 Training Program**

(Air Carrier Name inserted here)

F-7/R-01/2-20-03

CAPSTONE II EQUIPMENT VFR / IFR OPERATIONS

Title: En Route Operations

Objective: Insure the pilot has proper understanding and use of the Capstone II Equipment for en route operations for navigation and communication.

References: Company manuals, Capstone training material, and Practical Test Standards.

Description: Use of Capstone equipment as supplemental VFR navigation.
Use terrain alerting features with close attention to Altimetry issues especially when operating from a high to a low.

Use of traffic alerting features of Capstone equipment with emphasis on see and avoid as primary means of traffic avoidance.

Acceptable Performance Guidelines: Proper outside the cockpit watch for traffic in conjunction with Capstone equipment use and adequate attention to Barometric pressure settings for terrain alerting features.

**Capstone II
121/135 Training Program**

(Air Carrier Name inserted here)

F-8/R-01/2-20-03

CAPSTONE II EQUIPMENT VFR / IFR OPERATIONS

Title: Diversions

Objective: Use Capstone II installed avionics to locate and proceed to nearest suitable airport .

References: AFM supplement / checklists

Description: On a route of flight simulate an emergency situation that would require diversion to an off route airport.

Acceptable Performance guidelines: Demonstration that a suitable airport can be selected with a course and distance to that airport using Capstone Equipment

**Capstone II
121/135 Training Program**

(Air Carrier Name inserted here)

F-9/R-01/2-20-03

CAPSTONE II EQUIPMENT VFR / IFR OPERATIONS

Title: Terrain Alerting

Objective: Use Capstone MFD to display terrain features and plan avoidance of obstructions .

References: MFD users manual

Description: While en route use MFD to display terrain features and various colors in display for situational awareness. Put special attention on altimetry to ensure proper terrain separation.

Acceptable Performance Guidelines: Proper use of MFD with emphasis on Altimeter setting to ensure proper terrain separation.

CAPSTONE II EQUIPMENT VFR / IFR OPERATIONS

Title: Traffic Alerting

Objective: Use MFD to provide ADS-B traffic information.

References: MFD users manual

Description: Use the MFD to provide traffic alerting information while operating in the Capstone environment . Special emphasis must be placed on the importance of see and avoid as the primary means of traffic separation .

Acceptable Performance Guidelines: Proper use of ADS-B functions of MFD and outside the cockpit traffic watch.

CAPSTONE II EQUIPMENT VFR / IFR OPERATIONS

Title: Weather Information

Objective: Display weather text on MFD

References: MFD users guide

Description: Use the MFD to display weather text in cockpit of Capstone aircraft

Acceptable Performance Guidelines: Be able to display weather and properly interpret weather for safety of flight decisions.

CAPSTONE II EQUIPMENT VFR / IFR OPERATIONS

Title: Arrival (Decent and Approach)

Objective: Use Capstone avionics for navigation and MFD for traffic alerting

References: MFD users guide and GPS operators manual

Description: Use the capstone equipment in the Decent and Approach phase of flight for terrain and traffic alerting.

Acceptable Performance Guidelines: Be able to recognize any terrain or traffic situations that may pose a hazard to flight and take proper corrective action.

CAPSTONE II EQUIPMENT VFR / IFR OPERATIONS

- Title:** Airport area operations (arrival)
- Objective:** Maintain proper operating practices while using Capstone Equipment
- References:** Practical test standards
- Description:** The pilot needs to operate the aircraft within the airport traffic area using standard practices. Outside watch for traffic is extremely important.

**DO NOT HAVE YOUR HEAD DOWN TRYING TO USE THE
CAPSTONE EQUIPMENT IN A BUSY VFR TRAFFIC PATTERN.**

Acceptable Performance Guidelines: Maintain proper traffic watch and follow all prescribed airport arrival procedures.

Compliance with all clearances issued by the tower and/or
Check/Airman

Promptly advise tower and/or Check Airman if unable to comply
with a clearance.

**Capstone II
121/135 Training Program**

(Air Carrier Name inserted here)

F-14/R-01/2-20-03

CAPSTONE EQUIPMENT VFR / IFR OPERATIONS

Title: CAPSTONE REPORTING

Objective: Provide information to Capstone team.

References: Capstone Reporting Form

Description: Completing the Capstone reporting form.

Acceptable Performance Guidelines: A completed form.

**Capstone II
121/135 Training Program**

(Air Carrier Name inserted here)

F-15/R-01/2-20-03

CAPSTONE EQUIPMENT VFR / IFR OPERATIONS

LESSON PLAN: **OPERATIONS MANUAL, OP SPECS & MEL**

OBJECTIVE: Determine that the pilot operator of the Capstone installed avionics understands the limitations of operating the aircraft with inoperative components.

REFERENCES: Operations Manual and MEL

TESTING/CHECKING: Demonstrated ability to use operations manual and MEL properly.

(Air Carrier Name inserted here)

F-16/R-01/2-20-03

CAPSTONE EQUIPMENT VFR / IFR OPERATIONS

Assignment of Capstone duties by crew position.

Flying Pilot Duties

Non-Flying Pilot Duties

Note: These procedures and the checklist that accompany them need to be developed by each air carrier.

**Capstone II
121/135 Training Program**

(Air Carrier Name inserted here)

F-17/R-01/2-20-03

CAPSTONE EQUIPMENT VFR / IFR OPERATIONS

**This is for specific approach and procedures training as required by
operations specifications.**

RECORDKEEPING

CAPSTONE II

EQUIPMENT

TRAINING

RECORDKEEPING

THE RECORD KEEPING PRESENTED IN THIS SECTION IS INTENDED TO MEET THE FAA RECORD KEEPING REQUIREMENTS FOR CAPSTONE II EQUIPMENT TRAINING AND IS NOT APPROVED AS A RECORD KEEPING SYSTEM FOR OTHER FAR 121/135 PROGRAM REQUIREMENTS.

INDIVIDUAL OPERATORS MAY OBTAIN SEPARATE OR DIFFERENT RECORD KEEPING SYSTEMS FOR CAPSTONE II TRAINING. HOWEVER, AN FAA APPROVED RECORD MUST BE MAINTAINED.

- A. The Operator will maintain airman training records as required by the appropriate 121 or 135 regulation. In that training record will be kept a Record of Training Completion, Capstone Equipment.(CAP TR-1)The training records must establish and maintain initial, recurrent and requalification training as appropriate. Information required to be maintained for each airman's Capstone Record of Completion includes but is not limited to:
 - 1. The full name of the airman.
 - 2. The airman's certificate number.
 - 3. The airman's duty position(s).
 - 4. The date and result of each of the initial, recurrent and requalification.
 - 5. Check airman authorization, to conduct pilot proficiency or dispatcher competency checks.
 - 6. The date of the completion of the Initial phase and each Recurrent or Requalification phase of training.
 - 7. The date of any required Requalification Training.
- B. In accordance with FAR 121 or 135 each segment of training (ground or flight) Shall be certified by the applicable ground instructor, flight instructor or check Airman as to the proficiency and knowledge of the airman upon completion of The training or check. This certification will be part of the airman's training record.
- C. Documentation of Capstone Equipment operating experience will be maintained.

**CAPSTONE II
121/135 TRAINING PROGRAM**

(Air Carrier Name inserted here)

G-2/R-01/2-20-03

- D. A qualified instructor who conducts a classroom subject within a course, or a complete course of ground training required within this approved training program will be considered to have completed that subject/ course for their own training requirement. The Operator or his/her designee shall certify such credit. ***In NO case will a person sign his or her own training record.***
- E. Contractual simulator training certification will be documented by the inclusion of the contractor's certificate of completion in the crewmember's record file.
(Such as an FAA Approved LOFT in UAA's FRASCA 242 using Capstone Equipment)
- F. All completed records pertaining to the initial qualification requirements will be maintained in their original state in the airman's record. The record must include the individual's name; date of completion; training course or flight check; results; follow-up after unsatisfactory performance (if required); and the name of the certifying official.
- G. A score of 70% or higher constitutes satisfactory completion of a written examination. SAT entered in the results column indicates that the crewmember scored 70% or higher on course examinations. Any subject area determined to be deficient will be reviewed and additional instruction conducted to achieve a satisfactory level of knowledge.

AIRMAN RECORD KEEPING RESPONSIBILITY

To assure complete and accurate records, compliance with the Proficiency and Competency Check procedures set forth in The Capstone Training Program and FAR's 121 and 135, the instructor / check airman conducting the training or check will complete the appropriate forms.

The completed form will be inserted into the airman's record.

When an FAA Inspector is conducting or observing a flight check or competency check, their statement may be entered as well.

**CAPSTONE II
121/135 TRAINING PROGRAM**

(Air Carrier Name inserted here)

G-3/R-01/2-20-03

TRAINING FORMS:

(CAP TR-1)

**GROUND TRAINING ATTENDANCE RECORD
CAPSTONE II EQUIPMENT**

This form is provided as a means of recording and tracking ground training provided to Each airman participating in the Capstone Training.

(CAP TR-2)

CAPSTONE II EQUIPMENT/I.O.E./LINE CHECK

This form is provided as a means to record FAR 121 or 135 route qualification by an Airman for Capstone Equipment and may be placed in the airman's training record.

(CAP TR-3)

**DISPATCHER/FLIGHT FOLLOWER COMPETANCY CHECK
CAPSTONE II EQUIPMENT**

This form is provided as a means to record 121 or 135 Dispatcher Competency To dispatch aircraft and flight crews using Capstone Equipment.

(CAP TR-4)

CAPSTONE II INSTRUCTOR/CHECK AIRMAN QUALIFICATION RECORD

This form is provided as a means of recording ground instructor, flight instructor, Pilot check airman, and dispatcher check airman Training and qualifications.

(CAP TR-5)

**RECORD OF TRAINING COMPLETION
CAPSTONE II EQUIPMENT**

This form is provided as a means to document on a single form all elements of the Capstone Equipment Training. The form has places to record control dates for Initial, Recurrent and Requalification training.

**CAPSTONE II
121/135 TRAINING PROGRAM**

(Air Carrier Name inserted here)

G-4/R-01/2-20-03

**GROUND TRAINING ATTENDANCE RECORD
CAPSTONE II EQUIPMENT
Form (CAP TR-1)**

DATE ___/___/___ HOURS _____ LOCATION _____

TRAINING PRESENTED:

INITIAL	[]	INSTRUCTOR	[]
RECURRENT	[]	CHECK AIRMAN	[]
REQUALIFICATION	[]	OTHER (specify)	[] _____

CURRICULUM SEGMENTS COVERED: _____, _____, _____,

_____, _____, _____, _____, _____,

TRAINEE NAMES

PRINT: FIRST MI LAST SIGNATURE AIRMAN'S CERTIFICATE NO.

1.	_____	_____	_____
2.	_____	_____	_____
3.	_____	_____	_____
4.	_____	_____	_____
5.	_____	_____	_____
6.	_____	_____	_____
7.	_____	_____	_____
8.	_____	_____	_____
9.	_____	_____	_____
10.	_____	_____	_____

FAA PARTICIPANTS/OBSERVERS

1.	_____	_____	_____
2.	_____	_____	_____
3.	_____	_____	_____

GROUND INSTRUCTOR

PRINT: FIRST MI LAST SIGNATURE AIRMAN CERTIFICATE NO.

_____, _____, _____, _____, _____

**CAPSTONE II
121/135 TRAINING PROGRAM**

*** Use additional attendance records if needed for large classes ***

(Air Carrier Name inserted here)

G-5/R-01/2-20-03

**CAPSTONE II EQUIPMENT/ I.O.E./LINE CHECK
(FAR 121 AND 135)
Form (CAP TR-2)**

Pilot Name: First MI Last _____, _____, _____			Pic [] SIC []		Date:	
Route Segment:			A/C Type:		N:	
#T/O:	#Lndg:	Check Airman:			Time:	
Item Checked/Results	S	U	Item Checked/Results	S	U	
PREFLIGHT PLANNING			WEATHER INFORMATION			
CAPSTONE II EQUIPMENT SET UP AND TESTS			ARRIVAL (DECENT AND APPROACH)			
PRE TAKEOFF			TRAFFIC SCAN PROCEDURES			
USE OF CHECKLISTS			AIRPORT AREA OPERATIONS (ARRIVAL)			
CREW COORDINATION For AIRCRAFT REQUIRING MORE THAN 1 PILOT			APPROACH PROCEDURES (WHEN APPLICABLE)			
AIRPORT AREA OPERATIONS (DEPARTURE)			POST FLIGHT			
RADIO PROCEDURES			CAPSTONE REPORTING			
EN ROUTE PROCEDURES			OTHER:			
DIVERSIONS			OTHER:			
TERRAIN ALERTING			KNOWLEDGE OF EQUIPMENT			
TRAFFIC ALERTING			JUDGEMENT			
TYPE of TRAINING OR CHECKING:						
IOE () LINE CHECK ()						
Remarks/Comments:						
Results:	SAT		UNSAT		Check Airman Signature:	

**CAPSTONE II
121/135 TRAINING PROGRAM**

(Air Carrier Name inserted here)

G-6/R-01/2-20-03

**DISPATCHER/FLIGHT FOLLOWER COMPETANCY CHECK
CAPSTONE EQUIPMENT
Form (CAP TR-3)**

DISPATCHER NAME: _____, _____, _____ FIRST MI LAST	DUTY POSITION: DISPATCHER [] FLIGHT FOLLOWER [] SCHEDULER []	DATE: mm/dd/yy _____, _____, _____			
AIRMANS CERTIFICATE NUMBER: _____	AREA OF OPERATION: _____				
CHECK AIRMAN:	CERTIFICATE NUMBER:				
The dispatcher must understand the function and use of the Capstone Equipment and its effect on flight operations.					
ITEM CHECKED / RESULTS	S	U	ITEM CHECKED / RESULTS	S	U
Knowledge of Operations Area			Knowledge of Aircraft Used		
Flight Following			Fuel Requirements		
Alternates (DEPARTURE) (EN ROUTE) (ARRIVAL)			MEL		
NOTAMS (FDC) (L) (D)			COMMUNICATIONS		
PILOT REPORTS			RAIM FORECAST		
WEATHER REPORTS/FORECASTS (FD), (FA), (TAF), (AREA)			CAPSTONE LIMITATIONS		
STATION INFORMATION			FAR's		

**CAPSTONE II
121/135 TRAINING PROGRAM**

Remarks/Comments:			
Results:	SAT	UNSAT	Check Airman Signature:

(Air Carrier Name inserted here)

G-7/R-01/2-20-03

CAPSTONE INSTRUCTOR/CHECK AIRMAN QUALIFICATION RECORD

Form (CAP TR-4)

CERTIFICATION

This certifies that _____, _____, _____ has satisfactorily completed the training required for qualification as an instructor/check airman for Capstone II Equipment and is authorized to conduct: (check all appropriate)

Pilot Ground School: Initial ☐ Recurrent ☐ Requalification ☐

Dispatcher/Flight Follower Ground School: Initial ☐ Recurrent ☐ Requalification ☐

Flight Instruction I.O.E. : Initial ☐ Recurrent ☐ Requalification ☐

Line Check Aircraft: Initial ☐ Recurrent ☐ Requalification ☐

Dispatcher Competency Check : Initial ☐ Recurrent ☐ Requalification ☐

I CERTIFY THE ABOVE NAMED INDIVIDUAL MEETS THE REQUIREMENTS TO PROVIDE CAPSTONE EQUIPMENT TRAINING.

PRINT: FIRST MI LAST SIGNATURE AIRMAN CERTIFICATE NO.

_____, _____, _____ _____

Date Signed _____, _____, _____ mm/dd/yy Title: _____

“TRAIN THE TRAINER”

CURRICULUM

SEGMENTS

CAPSTONE INSTRUCTORS

CAPSTONE II

EQUIPMENT

TRAINING

**Capstone II
121/135 Training Program**

(Air Carrier Name inserted here)

T-1/R-01/2-20-03

LESSON PLAN: Course Materials

OBJECTIVE: Provide the Capstone trainer with a through understanding of all course materials that can be used to train Capstone pilot, dispatchers and flight followers.

REFERENCES: Capstone II Training Program, Pilots operating guide and student handbook.

COURSEWARE: Capstone II Training Program, Student handbook, PFD / PND simulator, overhead projector and transparencies or Power Point slides..

INSTRUCTIONAL

DELIVERY METHOD: Lecture, demonstration, hands on participation.

TESTING/CHECKING: Demonstrated ability to present Capstone material in a training environment.

STANDARD: The minimum passing score is 100%.

1. Review training program
2. Review student workbook
3. Review student exercises
4. Review exam

**Capstone II
121/135 Training Program**

(Air Carrier Name inserted here)

T-2/R-01/2-20-03

LESSON PLAN: Classroom exercises

OBJECTIVE: Provide the Capstone trainer with a through understanding of all classroom exercises can be used to train Capstone pilot, dispatchers and flight followers.

REFERENCES: Capstone II Training Program, Pilots operating guide and student handbook.

COURSEWARE: Capstone II Training Program, Student handbook, PFD / PND simulator, overhead projector and transparencies or Power Point slides..

INSTRUCTIONAL

DELIVERY METHOD: Lecture, demonstration, hands on participation.

TESTING/CHECKING: Demonstrated ability to present Capstone material in a training environment.

STANDARD: The minimum passing score is 100%.

- 1. Demonstrate the ability to work the classroom exercises.**
 - a. Create waypoints**
 - b. Create flight plans**
 - c. Load approaches**
 - d. Load DP,s**
 - e. Delete waypoints from active flight plan.**

Capstone II
121/135 Training Program

(Air Carrier Name inserted here)

T-3/R-01/2-20-03

LESSON PLAN: “Simulator” Operation

OBJECTIVE: Provide the Capstone trainer with a through understanding of the avionics training device that will be used to train Capstone pilots.

REFERENCES: Microsoft Professional Flight Simulator 2002 reference guide. Capstone avionics training device set up manual.

INSTRUCTIONAL DELIVERY METHOD: Demonstration, Hands on participation.

TESTING/CHECKING: demonstrated ability to set up the Capstone training device and use it to present Capstone training scenarios.

STANDARD: The minimum passing score is 100%.

APPENDICES

CAPSTONE II

EQUIPMENT

TRAINING

**Capstone II
121/135 Training Program**

(Air Carrier Name inserted here)

AP-1/R-01/2-20-03

Training Materials

Contains copies of presentations for notes and instructor reference.

**Capstone II
121/135 Training Program**

(Air Carrier Name inserted here)

AP-2/R-01/2-20-03

Reference Library

Contains:

Abbreviations acronyms

Checklists

AFM supplement

Sample op specs

Acronyms and Abbreviations

ACO – Aircraft Certification Office

ADC - Air Data Computer

ADS-B - Automatic Dependent Surveillance - Broadcast

AFM - Aircraft Flight Manual

AGL - Above Ground Level

AHRS - Attitude Heading Reference System

AMLCD - Active Matrix Liquid Crystal Display

APV - Approach with Vertical Guidance

ARINC - Aeronautical Radio, Inc.

ATA – Air Transport Association

ATC - Air Traffic Control

ATD – Aviation Technology Division UAA

CDI - Course Deviation Indicator

CDTI - Cockpit Display of Traffic Information

CFS - Chelton Flight Systems

CRC - Cyclic Redundancy Check

CWA - Caution/Warning/Advisory

DA - Decision Altitude

DEM - Digital Elevation Model

Acronyms and Abbreviations

DH - Decision Height

DL - Data Link

DME - Distance Measuring Equipment

DO - RTCA Document

DOD - Department of Defense

DOF - Digital Obstruction File

DOT – Department of Transportation

DP - Departure Procedure

DR - Dead Reckoning

EFIS - Electronic Flight Instrument System

EGPWS - Enhanced Ground Proximity Warning System

ETA - Estimated Time of Arrival

ETE - Estimated Time Enroute

FAA - Federal Aviation Administration

FAF - Final Approach Fix

FAR - Federal Aviation Regulation

FAWP - Final Approach Waypoint - same as FAF

FDE - Fault Detection and Exclusion

Acronyms and Abbreviations

FIS - Flight Information Service

FIS-B - Flight Information Service-Broadcast

FL - Flight Level

FLTA - Forward Looking Terrain Awareness

FMS - Flight Management System

FPM - Feet per Minute

FSDO – Flight Standards District Office

GPH - Gallons per Hour

GPS - Global Positioning System

GPWS - Ground Proximity Warning System

HAL - Horizontal Alert Limit

HAT - Height Above Threshold

HFOM - Horizontal Figure of Merit

HMI – Hazardous Misleading Information

HPL - Horizontal Protection Level

HSI - Horizontal Situation Indicator

HUL - Horizontal Uncertainty Limit

IAP - Instrument Approach Procedure, also Initial Approach Point

IAWP - Initial Approach Waypoint - same as IAP

Acronyms and Abbreviations

IDU - Integrated Display Unit

IFR - Instrument Flight Rules

ILS - Instrument Landing System

IM - Inner Marker

IO - Input/Output

IPV - Instrument Procedure with Vertical Guidance

KIAS - Knots Indicated Airspeed

KT - Knot - Nautical Mile per Hour

KTAS - Knots True Airspeed

LDA - Localizer-type Directional Aid

LNAV - Lateral Navigation

LOC - Localizer

LRU - Line Replaceable Unit

LTA – Less Than Adequate

MAHP - Missed Approach Holding Point

MAHWP - Missed Approach Holding Waypoint

MAP - Missed Approach Point

MAWP - Missed Approach Waypoint - same as MAP

MDA - Minimum Descent Altitude

MEL – Minimum Equipment List

Acronyms and Abbreviations

MFD - Multifunction Display (an IDU capable of multiple screens)

MM - Middle Marker

MSL - Mean Sea Level

MTBF - Mean Time Between Failures

ND - Navigation Display

NDB - Nondirectional Beacon

NM - Nautical Mile

NPA - Non-Precision Approach

OBS - Omnibearing Selector

OM - Outer Marker

OT - Other Traffic (Traffic Function)

PA - Proximate Advisory (Traffic Function)

PAI – Principle Avionics Inspector

PDA - Premature Descent Alert

PFD - Primary Flight Display

PFDE - Predicted Fault Detection and Exclusion

PLI - Pitch Limit Indicator

PMI – Principle Maintenance Inspector

POI – Principle Operations Inspector

Acronyms and Abbreviations

RA - Resolution Advisory (Traffic Function)

RMI - Radio Magnetic Indicator

RNAV - Area Navigation

RNP - Required Navigation Performance

RO – Regional Office (FAA)

SA - Selective Availability

STAR - Standard Terminal Arrival Routes

STC - Supplemental Type Certificate

SUA - Special Use Airspace

TA - Traffic Advisory (Traffic Function)

TAS - Traffic Advisory System

TAWS - Terrain Awareness and Warning System

TCAD - Traffic Collision Alert Device

TCAS - Traffic Collision Alert System

TERPS - Terminal Instrument Procedures

TCH - Threshold Crossing Height

TD - Traffic Display

TIS - Traffic Information Service

Acronyms and Abbreviations

TIS-B - Traffic information Service-Broadcast

TSO - Technical Standard Order

UAA – University of Alaska Anchorage

UAR - Unusual Attitude Recovery

USGS - United States Geological Survey

UTC - Universal Time Coordinated

VAL - Vertical Alert Limit

VFOM - Vertical Figure of Merit

VFR - Visual Flight Rules

VHF - Very High Frequency

VNAV - Vertical Navigation

VOR - VHF Omnidirectional Radio

VPL - Vertical Protection Level

VSI - Vertical Speed Indicator

VTF - Vectors to Final

VUL - Vertical Uncertainty Limit

WAAS - Wide Area Augmentation System

INFLIGHT QUICK REFERENCE LIST©

Departures / Approaches

► Always use Primary NAV display to make changes ◀

Select a (DP) Departure for a Flight Plan

1. Press **ACTV**.
2. Turn control knob to highlight desired airport, push knob to enter.
3. Turn control knob to highlight **DP**, push knob to enter selection. A list of procedures will be displayed.
4. Turn control knob to highlight desired procedure, push knob to enter selection.
5. Turn control knob to highlight desired transition, push knob to enter selection.
6. Turn control knob to highlight desired runway, push knob to enter selection.

Select an IFR Approach for a Flight Plan

1. Press **ACTV**.
2. Turn control knob to highlight landing airport, push knob to enter.
3. Turn control knob to highlight **IFR APPR**, push control knob to enter. List of instrument approaches will be displayed.
4. Turn control knob to highlight desired approach, push knob to enter selection.
5. Turn control knob to highlight desired transition, push knob to enter selection.
6. Turn control knob to highlight desired runway, push knob to enter selection.

Missed Approach Arming

1. To arm the missed approach, select the **MISSED** menu displayed in the upper left corner upon passage of final approach fix (FAF). Select this by using the upper left hand outer button.
2. Missed approach procedure waypoints will be displayed on the PFD and automatically sequenced so that *only* the active waypoint is shown, (magenta hoop).

INFLIGHT QUICK REFERENCE LIST©
Approaches / Track

► Always use Primary NAV display to make changes ◀

Select a VFR Approach

1. Press **ACTV**.
2. Turn control knob to highlight landing airport or user waypoint, push knob to enter.
3. Turn control knob to highlight **VFR APPR**, push control knob to enter. List of runways will be displayed.
4. Turn control knob to highlight desired runway, push knob to enter selection.

Change Runway During Approach

1. Press **ACTV**.
2. Turn control knob to highlight landing airport, push knob to enter.
3. Turn control knob to highlight **IFR APPR**, push control knob to enter. List of instrument approaches will be displayed.
4. Turn control knob to highlight *current* approach, push knob to enter selection.
5. Turn control knob to highlight *current* transition, push knob to enter selection.
6. Turn control knob to highlight desired runway, push knob to enter selection.

Parallel Track Function

1. Press **ACTV**.
2. Select the **PKT...** menu.
3. Turn control knob right or left to select desired offset distance in NM increments, press knob to enter.

To Turn Off Parallel Track:

1. Press the **ACTV**.
2. Select the **PTK...** menu.
3. Select the **OFF...** menu.

INFLIGHT QUICK REFERENCE LIST©

Waypoints

► Always use Primary NAV display to make changes ◀

Create a User Waypoint

1. Select **FLP**.
2. Turn control knob, highlight **CREATE/EDIT**, push knob to enter.
3. Turn control knob, highlight **CREATE USER WPT (LAT-LON)** or **(RAD-DST)** push knob to enter.
4. Turn control knob to select waypoint, push knob to enter selection.

Edit a User Waypoint

1. Select **FLP...menu**.
2. Turn control knob to highlight **CREATE/EDIT** push control knob to enter.
3. Turn control knob to highlight **EDIT USER WPT**, push control knob to enter.
4. Highlight waypoint to be edited, push knob to enter. Back up by using **BACK**.

Select a Waypoint Within a Route

1. Press **ACTV**.
2. Active waypoints will be displayed.
3. Turn control knob to select desired waypoint.
4. Press control knob to go direct to selected waypoint.

Delete a User Waypoint

1. Select **FLP...menu**.
2. Turn control knob to highlight **CREATE/EDIT** push control knob to enter.
3. Turn control knob to highlight **DELETE USER WPT**, push control knob to enter.
4. Highlight waypoint to be deleted, push knob to delete waypoint.
5. Push control knob to confirm.

INFLIGHT QUICK REFERENCE LIST©
Waypoints

► Always use Primary NAV display to make changes ◀

<u>Direct to</u> Waypoint	Direct to <u>Nearest</u>	<u>Re-Center</u> on Direct Route
<ol style="list-style-type: none"> 1. Press D➤. 2. Turn control knob to enter identifier of desired waypoint. 3. Push knob to enter selection. 	<ol style="list-style-type: none"> 1. Press NRST. 2. Turn control knob, highlight choice of nearest airport, VOR, NDB, INT, or waypoint, push knob to enter selection. 	<ol style="list-style-type: none"> 1. Press D➤. 2. Active waypoint will be displayed. 3. Press control knob to go direct to active waypoint.

Add Waypoint to an Active Route

1. Press **ACTV**.
2. Turn control knob to select the waypoint that will appear *after* the newly added waypoint.
3. Select **INSERT...**Menu.
4. Enter waypoint identifier.
5. Turn control knob to highlight desired waypoint press knob to enter selection.

Delete Waypoint from an Active Route

1. Press **ACTV**.
2. Turn control knob to highlight desired waypoint to delete.
3. Select **DELETE...** Menu.
4. Push control knob to confirm.

INFLIGHT QUICK REFERENCE LIST©

Waypoints

► Always use Primary NAV display to make changes ◀

Create User Waypoint at Current Location

1. Press **MENU**.
2. Press **INFO** to select highlighted **DESIG**.
3. This will generate a user waypoint “on the fly”, and will automatically assign an alpha numeric user waypoint identifier.

Omnibearing Selector Function

► Always use Primary NAV display to make changes ◀

Automatic OBS

1. Press **OBS**.
2. **AUTO** (default) will be highlighted, push control knob to enter.

Manual OBS

1. Press **OBS**.
2. Turn control knob to highlight **MANUAL**, push control knob to enter.
3. Turn control knob to select desired OBS course, push control knob to enter.

INFLIGHT QUICK REFERENCE LIST©

Timer Functions► May use either display to make changes ◀**Flight Timer**

1. Press **MENU**.
2. Select **TIMER**...menu.
3. Turn knob to **FLT TIME**, press control knob to enter.
4. Timer will be displayed for 10 seconds in bottom right hand corner of display.

Count Up

1. Press **MENU**.
2. Select **TIMER**...menu.
3. Turn control knob to highlight **COUNT UP**, push control knob to enter.

Turn Off Timer

1. Press **MENU**.
2. Select **TIMER**...menu.
3. Select **OFF**...menu.

Count Down

1. Press **MENU**.
2. Select the **TIMER**...menu.
3. Turn control knob to highlight **COUNT DN**, push control knob to enter.
4. Enter desired time period by turning control knob to select desired numeric characters. Pushing control knob to enter selection will advance to next numeric character to be selected.